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EXAMINER	
BARON, HENRY	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/720,193	SHIBASAKI, KAZUNORI	
	Examiner	Art Unit	
	HENRY BARON	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3, 5 – 6, 8, 10, and 12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 5 – 6, 8, 10, and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

MOBILE COMMUNICATION BASE STATION DEVICE AND QOS CONTROL METHOD AND PROGRAM THEREOF

Response to Arguments/Remarks

1. Claims 1, 3, 5 – 6, 8, 10, and 12 are pending in this application with claims 1, 5, 6, and 10 currently amended and claims 2, 4, 7, 9, 11, and 13 cancelled.

2. Applicant's arguments filed 04/15/2009 have been fully considered but they are not persuasive.

3. Applicant argues that Raychaudhuri does not teach or even suggest at least (i) obtaining state information of the wireless channel from said wireless unit and said coding and decoding unit; (ii) state information of the wireless channel that is a data rate of the wireless channel; (iii) giving channel control instruction to use a band of the ATM channel appropriate for the state of the wireless channel; (iv) instructing a channel control unit to set priority to each data received from the plurality of mobile apparatuses; (v) setting a priority according to a state of each wireless channel through which the data in question is transmitted and received; (vi) setting a priority for conducting relay to an ATM channel; and (vii) setting a higher priority for relaying each data received to said ATM channel if the state of the wireless channel is below a predetermined threshold (and vice versa).

4. Applicant argues that that Kobayashi cannot cure the deficiencies associated with Raychaudhuri because Kobayashi is also deficient with respect to each feature enumerated above. Kobayashi discloses a common signal channel ("CSC") interconnecting two exchanges with flexible capacity based on traffic volume. In a first embodiment of Kobayashi, the traffic volume within the CSC is detected and, based on the detected traffic volume; a determination is made as to whether or not the capacity of

the CSC needs to be changed. In other words, the channel capacity of the CSC is adapted based on the traffic volume in the CSC. In the second embodiment, the total channel capacity is shared between the CSC, the speech channel, and a "remaining segment.". In this embodiment, both the speech channel and CSC may use a portion of the "remaining segment" during times of increased volume. However, if both the speech channel and the CSC desire a portion of the "remaining segment," the speech channel is given priority to use the "remaining segment." Kobayashi, however, does not teach any of the above enumerated features required by independent claims 1, 5, 6, and 10. Each feature is discussed in detail below.

5. In replying to Applicant's ' volume cannot be considered to be the same as a rate', Examiner notes that the amended claim now recites, inter alia, '..wherein the state information of the wireless channel is *associated* with a data rate of the wireless channel,..'. Support for Applicant's wireless state information *associated* with a data rate, as far Examiner can discern, is found in Applicant's Figure 3, where the ATM channel is depicted as a pipe with a vertical dimension of '10M'. Within the art the 10M dimension represents, either 10 Megabytes or 10 Megabits, but in any case, the dimension represents a data volume or (full) capacity of the ATM channel. The horizontal 'dimension' depicted is Figure 3 represents time; the solid (and wiggly) lines within the volume of the pipe represent varying wireless data rate, or change is volume (sic capacity) relative to time. In comparison, Kobayashi Figure 7 also depicts a traffic volume in the vertical dimension with a horizontal dimension which represents time. Kobayashi teaches that the common channel volume changes within a time interval, i.e. C1 – C8, where the volume changes are associated with a data rate i.e. change is volume (sic capacity) relative to time. Examiner agrees with Applicant's assertion that ' volume cannot be considered to be the same as a rate', but the change of volume over a period can be the same as a rate.

6. In reply to Applicant's argument regarding 'a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold.' Examiner refers to Kobayashi Figure 6 where a speech channel (depicted as a pipe) and a common signal channel (depicted as a smaller pipe) are embedded in a larger capacity pipe. As channel conditions change the higher priority speech data rate spills over to the unused capacity of the ' larger capacity pipe'. The lower priority common signal capacity is allowed to do the same - only if the capacity is not used by the speech channel - thus teaching where a higher priority i.e. speech is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority i.e. common signal, is set to each data received if the state of the wireless channel is above a predetermined threshold. Further in Kobayashi teaches in 5: [0011] read FIG. 4 shows in detail the manner in which the common channel capacity manager 11c operates. As shown in FIG. 4, when supplied with the traffic information from the traffic observer 11a, the common channel capacity manager 11c averages the traffic volume represented by the supplied traffic information over an average observation time Ta, producing an average value 40a, and determines which one of regions defined by discrete thresholds X1.about.X5 the average value 40a belongs to. In the illustrated embodiment, the average value 40a belongs to the region between the thresholds X3, X4. After the region to which the average value 40a belongs has been determined, the common channel capacity manager 11c selects a larger one of the thresholds X3, X4, i.e., the threshold X4 i.e. a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold. The common channel capacity manager 11c then compares the selected threshold X4 with a channel capacity 41a (corresponding to the threshold X5) to which the common signal channel 2 is presently set. If the selected threshold X4 differs from the channel capacity 41a, then the common channel capacity manager 11c decides that the channel capacity to which the common signal channel 2 is presently set needs

to be changed, and designates the selected threshold X4 as a channel capacity to be newly established. Since the selected threshold X4 differs from the channel capacity 41a in this illustrated embodiment, the common channel capacity manager 11c designates the threshold X4 as a channel capacity 41b to be newly established i.e. a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 5 – 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhur, (U.S. Patent 563871) in view of Kazutoshi et al. (U.S. Patent 5978380), hereafter Kazutoshi.

9. Regarding Claims 1, 5 – 6, and 10, Raychaudhur teaches of a mobile communication base station device, QoS control method, and program in a mobile communication base station device that conducts radio communication with mobile apparatuses connected to an ATM network using modulation/demodulation and coding/decoding. (Figure 2). The examiner notes that it is common for wireless base stations to use modulation/demodulation to attach data to carrier signals and coding/decoding to mitigate data errors in transmissions. See, for example, Han et al. (U.S. Patent US 6795416) Abstract which is cited here as evidence.

10. However, Raychaudhur is silent with regards to a channel control unit to regulate ATM channel bandwidth or of a channel QoS management unit that gives instructions to the channel control unit based on the state information of the wireless channel.

11. Kazutoshi, by contrast, teaches of a wireless channel state monitoring unit (3:45-60; i.e. traffic monitor detecting means of a common signal channel); channel control unit (3:45-60; i.e. channel capacity executing mean) for ATM channel bandwidth and a QoS management unit (3:45-60 and Figure 1; i.e. channel capacity change determining mean). Note, Kazutoshi teaches of channel state (e.g. common channel signaling monitoring) between two generic exchange units (Figure 1; elements 3 and 4). However, from a data interface view, one exchange unit could be a base station and a second exchange unit could be ATM switch. Further, Kobayashi Figure 6 where a speech channel (depicted as a pipe) and a common signal channel (depicted as a smaller pipe) is embedded in a larger capacity pipe. As channel conditions change the higher priority speech data rate spills over to the unused capacity of the ' larger capacity pipe'. The lower priority common signal capacity is allowed to do the same - only if the capacity is not used by the speech channel - thus teaching where a higher priority i.e. speech is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority i.e. common signal, is set to each data received if the state of the wireless channel is above a predetermined threshold. Further in Kobayashi teaches in 5: [0011] read FIG. 4 shows in detail the manner in which the common channel capacity manager 11c operates. As shown in FIG. 4, when supplied with the traffic information from the traffic observer 11a, the common channel capacity manager 11c averages the traffic volume represented by the supplied traffic information over an average observation time Ta, producing an average value 40a, and determines which one of regions defined by discrete thresholds X1.about.X5 the average value 40a belongs to. In the illustrated embodiment, the average value 40a belongs to the region between the thresholds X3, X4. After the region to which the average value 40a belongs has been determined, the common channel capacity manager 11c selects a larger one of the thresholds X3, X4, i.e., the threshold X4 i.e. a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold. The common channel capacity manager 11c then compares the selected

threshold X4 with a channel capacity 41a (corresponding to the threshold X5) to which the common signal channel 2 is presently set. If the selected threshold X4 differs from the channel capacity 41a, then the common channel capacity manager 11c decides that the channel capacity to which the common signal channel 2 is presently set needs to be changed, and designates the selected threshold X4 as a channel capacity to be newly established. Since the selected threshold X4 differs from the channel capacity 41a in this illustrated embodiment, the common channel capacity manager 11c designates the threshold X4 as a channel capacity 41b to be newly established i.e. a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold. Also, in a second embodiment Kazutoshi teaches that channel QoS management unit instruct the channel control unit to set priority to each data received from the plurality of mobile apparatuses. (6:51-67 read [t]he present wireless ATM system is capable of operating with different physical levels that may vary in terms of bit-rate and burst acquisition performance i.e. channel QoS management . The basic requirement for the wireless ATM network is a burst modem with a reasonably high bit-rate (typically 10 mbps or higher) and a relatively short acquisition preamble (16 bytes or lower). The system definition permits the use of burst modems that do not fully meet the above performance goals, in which case certain service quality and channel efficiency limitations will result. and 7:1 – 5 read [t]he MAC layer protocol, i.e. QoS management unit, is capable of providing integrated support of ATM services, including constant bit-rate (CBR), variable bit-rate (VBR) and available bit-rate (ABR) i.e. instruct the channel control unit to set priority to each data received from the plurality of mobile apparatuses …. and Figure 6).

12. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ATM teachings of Raychaudhur with the channel monitor, control and change teachings of Kazutoshi to map ATM bandwidth with wireless channel conditions. By doing do, valuable ATM bandwidth can be re-allocated to other network services

when the wireless channel conditions are poor e.g. high BER and C/N, and conversely additional ATM bandwidth can be re-allocated when the wireless channel conditions are good. This would optimize the ATM network and make it more economical.

13. Claims 3, 8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhur, (U.S. Patent 563871) in view of Kazutoshi et al. (U.S. Patent 5978380), hereafter Kazutoshi and further in view of Aznar et al (U.S. Patent 6754182), hereafter Aznar.

14. Regarding Claims 3, 8, and 12, though teaching the limitations of Claim 1, neither Raychaudhur nor Kazutoshi teach at the time of decoding in coding/decoding unit, record time information; transfer data to the channel control unit together with the recorded time information; and abandon data whose delay exceeds a delay designated by the Channel QoS management unit.

15. However, Aznar teaches of an ATM traffic-policing algorithm where conforming cells are accepted into the network and non-conforming cells may be disposed, i.e. abandoned, of immediately. Aznar's method allow use of a finite counter for measuring elapsed time at entry ports of ATM switching nodes (Abstract, Figure 1; 3:26-50)

16. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ATM teachings of Raychaudhur, the channel monitor, control and change teachings of Kazutoshi with the ATM traffic policing algorithm of Aznar to record time information i.e. timestamp, during codec and then use the policing algorithm in the Channel QoS management unit to regulate which data is passed to the ATM network.

17. In this manner, tardy data, i.e. cells, can be immediately abandoned so as not to consume valuable ATM bandwidth. This would further improve the efficiency of the network, making it more cost effective. Integrating the ATM traffic-policing algorithm in the Channel QoS management unit is logical because policing traffic is the main function of that unit.

FINAL ACTION

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce can be reached on (571) 272-2487. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HB/
Examiner, Art Unit 2416
HB

/Kevin C. Harper/
Primary Examiner, Art Unit 2416